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2. Avicenna and his *Canon of Medical Science*: reconstructing the basic principles of rational nutrition

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Introduction: Ibn Sina, or Avicenna in Latin tradition, paid great attention to the issues of rational nutrition more than 1,000 years ago. The prominent son of Tajik people – philosopher, physician, scientist, Avicenna in his famous work, *Canon of Medical Science*, had actually laid out the basic scientific principles of rational nutrition and furthermore had given many practical advices on nutrition, which are extremely relevant today.

Materials and methods: The main material for our research is the work entitled *Canon of Medical Science* written by Avicenna at the first third of the 11th century. It is read with a usage of contemporary scientific (particularly philological) methods including analytic, history-typological, 'close reading,' and synthetic.

Results and discussions: In general, Avicenna gave a lot of advices of *what, when, how,* and *how much* to eat, paying particular attention to the so-called 'incompatibility of certain products.' For normal food, he considered it appropriate to use such products that would negate the effect of each other, creating the optimal balance. For instance, if you eat cucumber and pumpkin, their action would be balanced by the opposition tools such as garlic and leeks.

Otherwise, the use of various foods is what Avicenna considered inappropriate – not only due to the revenues in the stomach of a range of products require uneven time for digestion, but also because in this case there is a larger danger to overeat than in the use of monogenic food.

By the way, in such aspect as an incompatibility of food, we almost do not pay attention on what our chefs do in public catering points. They manage (quite successfully) to combine the incompatible things and to feed us with this amazing mixture. Yet we do understand that one of the principles of rational nutrition is *the variety in a diet that provides the intake of all of the necessary substances.* Henceforth, our diet should be various, but it does not mean that all of the necessary components are to be 'pushed' into the stomach in one sitting; we have to plan our diet in accordance with food compatibility.

Ignoring these two principles (variety and compatibility) would cause to bad consequences, especially now, with increasing risk of allergy in a contemporary person. Avicenna had specified some 'classical' incompatible products: it is not recommended to consume milk simultaneously with acidic foods or to combine fish and dairy products (by the way, the same principle was formulated by Arnold from Villanova in *Salerno Code of Health*, 1305).

Another relevant thing is a theory of hunger strike. Avicenna believed that fasting is quite necessary, only if a man has overeaten a day before. Also he was agreeing with Latin physiologist Rufus Mesonius that it is pretty good to take a walk after meal, because 'it is preparing well a place for an evening meal.'

Avicenna recommended not restraining the appetite as it appears, because such abstinence may be harmful due to the bigger production of excess stomach juice. Also he advised not to eat until it is a real appetite and the stomach gets freed from the previous food. The biggest flaw in any diet, for Avicenna, is overeating. He was a staunch supporter of sobriety; in this point, he was a follower of Socrates and Galen who recommended to eat as much as it is necessary for the body, and to rise from a table with a slight feeling of hunger. Overeating almost always leads to obesity, as Avicenna wrote; animals are in good condition and do not suffer from excessive body weight, thanks, first of all, to perfect operation of their regulatory mechanisms.

Many pages in Avicenna's *Canon* are dedicated to the role of fibers in nutrition. It is apparent that he almost foresaw the era of refined food. Today's practice of removal of 'ballast substances' (including fibers) from food raw materials has got a profound and – as a rule – negative impact on the state of intestinal flora and peristalsis. The epidemiological researches conducted in some foreign countries have confirmed that diseases such as appendicitis, intestinal diverticulosis, adenomatic polyps, and colon cancer are closely related to the consumption of gourmet food.

To improve digestion, Avicenna recommended eating more vegetables: cabbages, beets, parsley, cauliflower, pigweed, and chicory. He also advised to include to a diet such products as raw peeled cucumbers and bread with bran. In general, talking about foods, Avicenna had noted the advantages and disadvantages of each product.

Conclusions: *Canon of Medical Science* became a medical encyclopedia for the entire world. Once printing was invented, *Canon* was published right after Bible. For many centuries, in Europe and Asia the physicians studied medicine by this book. As the food science is intensively developing here in Ukraine, *Canon* needs more attention form both philologists and physicians who are creating a new theory of rational nutrition thanks to the principles that were formulated about one millennium ago, yet in other terminological categories. Avicenna's contribution into development of empiric knowledge on foodstuffs is outstanding because of his theories of appetite, nutrition regimes (distribution of a daily portion of food into small amounts), importance of water in nutrition, precise organization of nutrition for children and old age people.

Bibliography

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